BLACK

BLK-HDC10IR 2 Megapixel Indoor/Outdoor IR Bullet Camera User Manual

Please read this manual before using your camera, and always follow the instructions for safety and proper use. Save this manual for future reference.

WARNING

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

CAUTION

To prevent electric shock and risk of fire hazards, use a power source that is within specification only.
Do NOT expose this appliance to rain or moisture.

REGULATORY NOTICE

This equipment may generate or use radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

REGULATORY INFORMATION : FCC Part 15

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

LEGAL NOTICE

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The recording, transmission, or broadcast of any person's voice without their consent or a court order is strictly prohibited by law.

Observint makes no representations concerning the legality of certain product applications such as the making, transmission, or recording of video and/or audio signals of others without their knowledge and/or consent. We encourage you to check and comply with all applicable local, state, and federal laws and regulations before engaging in any form of surveillance or any transmission of radio frequencies.

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For Sales and Support, please contact your distributor.

PRECAUTIONS

WARNING - Do not install this equipment in a confined space such as a bookcase or similar unit.

WARNING - Wiring methods shall be in accordance with the National Electric Code, ANSI/NFPA 70.

WARNING - This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

WARNING - To reduce a risk of fire or electric shock, do not expose this product to rain or moisture.

CAUTION - Installation should be performed by a qualified service person and should conform to all local codes.

CAUTION - To avoid electrical shock, do not open the camera enclosure. Refer servicing to qualified personnel only.

CAUTION - Danger of explosion if battery is incorrectly replaced. Replaced only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

A suitable conduit entries, knock-outs or glands shall be provided in the cable entries of this product in the end use.

Holes in metal, through which insulated wires pass, shall have smooth well rounded surfaces or shall be provided with bushings.

DISPOSAL OF YOUR OLD APPLIANCES

1. All electrical and electronic products should be disposed of separately from the municipal waste stream via designated collection facilities appointed by the government or local authorities.

2. The correct disposal of your old appliance will help prevent potential negative consequences for the environment and human health.

3. For more detailed information about disposal of your old appliance, please contact your city office, waste disposal service or the shop where you purchased the product. To disconnect power from the mains, pull out the mains cord plug. When install the product, ensure that the plug is easily accessible.

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions - All these safety and operating instructions should be read before the product is operated.
2. Keep these instructions - The safety, operating and user instructions should be retained for future reference.
3. Heed all warnings - All warnings on the product and in the operating instructions should be adhered to.
4. Follow all instructions - All operating and user instructions should be followed.
5. Do not use this apparatus near water - For example : near a bath tub, wash bowl, kitchen sink, laundry tub, in a wet basement; near a swimming pool; etc.
6. Clean only with dry cloth - Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions. - Slots and openings in the cabinet are provided for ventilation, to ensure reliable operation of the product, and to protect it from overheating. The openings should never be blocked by placing the product on a bed, sofa, rug or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided and the manufacturer's instructions have been adhered to.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

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SECTION 1
Introduction

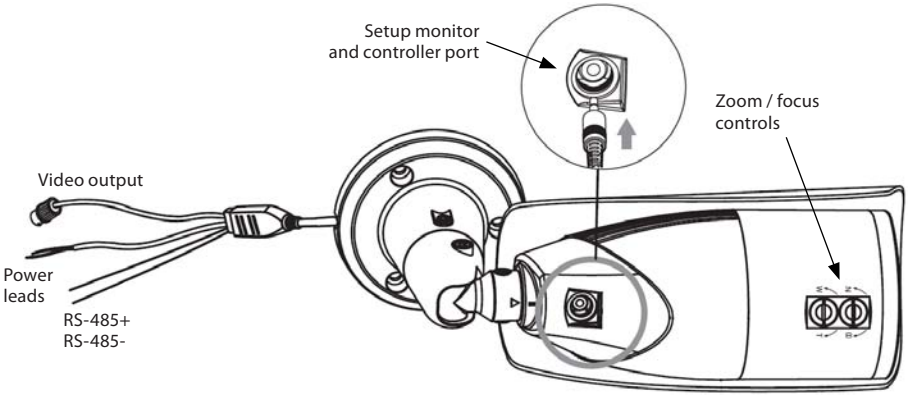
This high definition indoor/outdoor IR bullet camera features 2.1 megapixel imaging with 1920 x 1080 resolution along with 3-dimensional Noise Reduction (3D-NR). High definition video – HDcctv security cameras deliver true 1080p or 720p HD video, true HDTV-quality video in live and recorded view modes.

3D-NR automatically provides a more accurate noise reduction. This is based on twice the visual information than conventional field-based types. The video noise is reduced by 30 % in low light for a 2 dB improvement in the signal-to-noise ratio. The result is a brighter picture with less noise, even in low light.

Features

- IP66 rated, aluminum die-cast housing for rugged vandal proof performance
- Wall or ceiling mounting through 3-axis camera bracket
- 1/3" Panasonic CMOS sensor
- Full HD resolution
- DAY & NIGHT
- Smart IR function preventing IR saturation
- Auto switching IR LED control by photocell
- IR LED: 36pcss
- WDR (Wide Dynamic Range)
- DNR (Digital Noise Reduction, 2D+3D)
- Privacy mask function
- Defog function
- On screen display (OSD)
- Built-in service monitor port and external OSD setup port
- Cable managed bracket
- Externally adjustable focal length and focus
- HD-SDI/CVBS output
- RS-485 multi protocol (PELCO-D, PELCO-P)

1.1 Camera components



Drop cable and underside features

NOTES:

- **Setup monitor and controller port**: Open the cap on the underside of the camera, then insert the mating service monitor and controller jack into the plug.
- **Focus / zoom controls**
  - To widen the viewing angle, turn the zoom screw to "W".
  - To narrow the viewing angle, turn the zoom screw to "T".
  - To adjust the focus, turn the focus screw to "N" or "∞" as needed.
- **RS-485+ and RS-485-** : Connect to an external RS-485 controller.
- **Power leads** (12 Vdc, 24 Vac polarity independent)
- **Video output**: HD-SDI output to DVR or surveillance monitor with high definition video functionality.

1.1.1 Setup monitor and controller cable

Use the setup monitor and controller device to monitor video for directional setup and configuration setup through the on-screen display (OSD) menus.

1.2 What you need

To install the camera you will need:

- Power source
- Setup monitor
- Tools for mounting the camera

SECTION 2
Installation

2.1 Mounting the camera

The camera can be mounted on any surface with sufficient strength to support it. The camera drop cable can be routed either through the drop cable channel in the mounting bracket, or through a hole in the mounting surface covered by the mounting bracket.

1. Using the camera mounting bracket as a guide, mark the location of the screws that anchor the bracket to the mounting surface. If you are routing the drop cable through base, also mark the position of the hole for the drop cable.

2. Drill holes for the screws that anchor the base to the mounting surface. Four (4) course-threaded screws are provided. Depending on the surface materials, more appropriate fasteners may be required.

3. Drill a 3/4" diameter hole for the drop cable, if necessary.

4. Route the drop cable through the hole through the mounting surface or through the cable channel in the mounting bracket, then attach the camera to the base using appropriate fasteners.

5. Connect the camera drop cable to video and RS-485 cables as required.

NOTE *Drop cable connectors are not waterproof.*

6. Connect the camera drop cable power leads to the power source in compliance with local codes.

7. Attach the sun shield with the bolt provided, if not already installed.

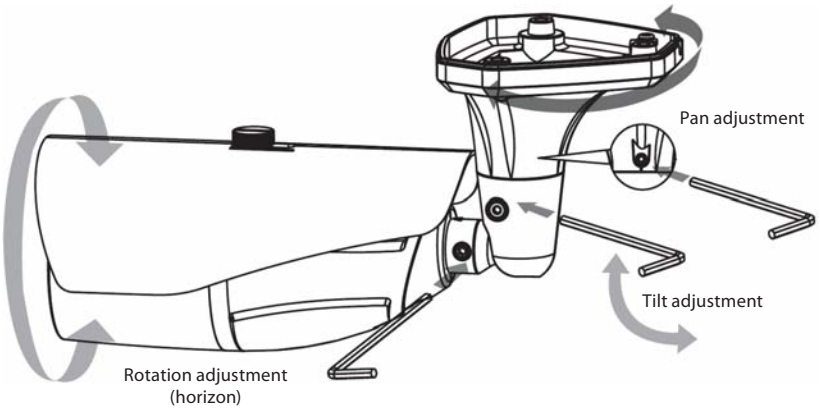
2.2 Setting up the camera

1. Remove the cap that covers the setup monitor and controller port (see "1.1 Camera components" on page 2 above).

2. Insert the mating connector of the setup monitor and controller cable into the service plug.

3. Connect a setup monitor to the BNC video connector on the setup monitor and controller cable.

4. While observing video from the camera on the setup monitor and holding the camera in place, loosen the pan, tilt and rotation set screws with the hex wrench provided.



5. Aim the camera at the center of the preferred field of view. Rotate the camera body as needed to align the horizon in the image, then tighten the pan, tilt and rotation set screws.

6. Use a blade screwdriver to adjust the camera focus and zoom as needed.

7. Configure your camera using the software menus in the on-screen display (OSD). Refer to "SECTION 3 Configuration Setup" on page 6 for more information.

8. Power off the setup monitor, then disconnect the setup monitor and controller cable from the service plug.

9. Reinstall the cap that covers the setup monitor and controller port.

SECTION 3
Configuration Setup

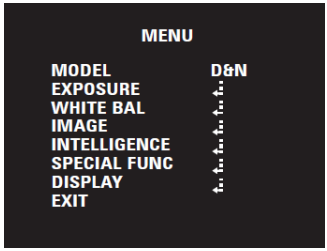
Use the on-screen display (OSD) menus to configure your camera for the environment where it is installed and recording requirements you prefer.

3.1 Menu operation

Navigation through the OSD menu system is performed menu navigation buttons located controller.

- **Up button** ⬆ : Moves the cursor upwards in the menu. Use this button to select an item or adjust the parameters.
- **Down button** ⬇ : Moves the cursor downwards in the menu. Use this button to select an item or adjust the parameters.
- **Right button** ➡ : Moves the cursor to the right in the menu. Use this button to select or adjust the parameters of the selected item. The parameter changes each time this button is pressed.
- **Left button** ⬅ : Moves the cursor to the left in the menu. Use this button to select or adjust the parameters of the selected item. The parameter changes each time this button is pressed.
- **SET button**: Opens the OSD menu system, opens submenus for an item, selects items.

Press the **Set** button to open the OSD main MENU consists of a list of sub-menus or displays the option selected for a camera function. When sub-menus are available, the ↵ symbol is shown.

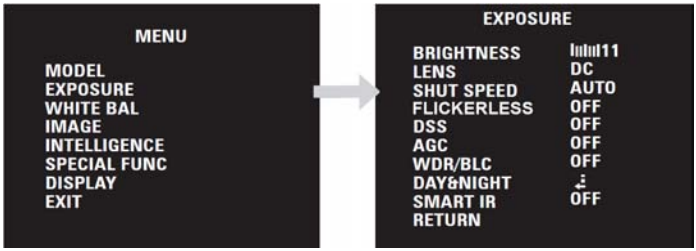


3.2 MODEL

MODEL: Select model type: D&N (day and night) / COLOR / IR SMART / IR CDS

3.3 EXPOSURE

To open the EXPOSURE menu, **rock** the joystick down (or up) to highlight EXPOSURE, then **press** the joystick down (set, select).



- **BRIGHTNESS**: Adjust brightness level: 0 (dark) ~ 20 (bright) steps
- **LENS**: DC / MANUAL
- **SHUT SPEED**: Can be set in AUTO or MANUAL: AUTO / 1/30 (25), 1/60 (50), 1/120 (100), 1/240, 1/500, 1/1000, 1/2000, 1/4000, 1/8000, 1/16000,1/30000, 1/60000 s
- **FLICKERLESS**: Set to On or Off for best video performance. Normally OFF.
- **DSS**: Select maximum DSS (Digital Slow Shutter): OFF / x2, x3, x4
- **AGC**: Select Auto Gain Control OFF / ON
- **WDR/BLC**: Select WDR (Wide Dynamic Range) or BLC (Back Light Compensation). NOTE: When WDR is ON, ACE and DEFOG function will not turn on.
  - WEIGHT : Adjust WDR level 0 ~ 3
- **BLC**
  - AREA : Control BLC area according to light condition.
  - POS-X : Adjust the window X-Axis position
  - POS-Y : Adjust the window Y-Axis position
  - SIZ-X : Adjust the window X-Axis size
  - SIZ-Y : Adjust the window Y-Axis size
- **DAY&NIGHT** : Select Day&Night. The MODEL mode determines content of the DAY&NIGHT submenu.

  D&N Model
  - AUTO / DAY / NIGHT / EXT
    - Delay : 0 ~ 255 second
    - BURST : OFF / ON
    - THRS : LOW / MIDDLE / HIGH. Select Day&Night change level. Higher level make the night mode changed in lower illumination.
    - GAP : LOW / MIDDLE / HIGH: Select Day to Night mode change and Night to Day mode change.

COLOR Model

- AUTO / DAY / NIGHT / EXT
- Delay : 0 ~ 255 second
- BURST : OFF / ON
- THRS : LOW / MIDDLE / HIGH
- GAP : LOW / MIDDLE / HIGH

IR SMART Model

- AUTO
  - Delay : ---
  - BURST : OFF / ON
  - THRS : ---
  - GAP : ---

IR SMART OFF

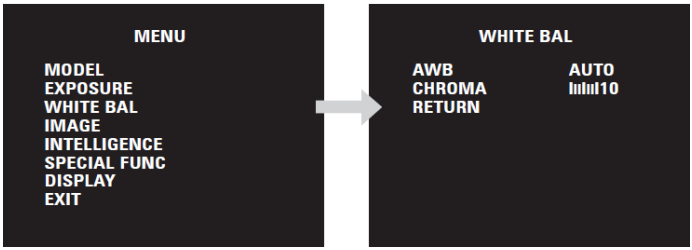
IR SMART ON

IR CDS Model

- AUTO / DAY / NIGHT
  - Delay : ---
  - BURST : OFF / ON
  - THRS : ---
  - GAP : ---

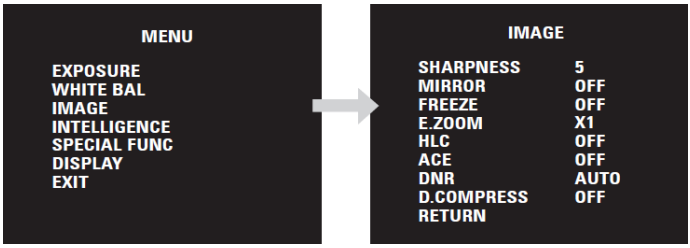
- **SMART IR** : OFF / ON. **NOTE**: SMART IR function only works with IR Smart Model.
  - THRS : Set-up Smart IR turns on point. When you level up the value, Smart IR turns on in a low light condition.
  - AREA : Set up areas to control Smart IR function. When BLC mode is on, Smart IR area is following BLC area.
  - POS-X : Adjust the window X-Axis position
  - POS-Y : Adjust the window Y-Axis position
  - SIZ-X : Adjust the window X-Axis size
  - SIZ-Y : Adjust the window Y-Axis size
  - IR COMP : Compensate for IR fluctuations. When you use this function, put a test object 12 in (30 cm) from the camera. If an object is located nearer than 12 in and an object that could reflect light is in front of the camera, the camera cannot compensate for the fluctuations.

3.4 WHITE BALANCE



- **AWB** : Select WHITE BALANCE mode. AUTO / PRESET / MANUAL / INDOOR / OUTDOOR
  - AUTO : Automatically adjusts color according to the lighting.
  - PRESET : It is a fixed white balance mode that may be automatically readjusted only by pressing PRESET
  - MANUAL : You can change WB as changing "RED GAIN" and "BLUE GAIN" in manual mode.
    - RED GAIN : Adjust R gain value 0 ~ 20
    - BLUE GAIN : Adjust B gain value 0 ~ 20
  - INDOOR : Set color temperature to be Indoor light (3700 K)
  - OUTDOOR : Set color temperature to be Outdoor light (5100 K)
- **CHROMA** : Adjust CHROMA gain value 0 ~ 20 steps

3.5 IMAGE

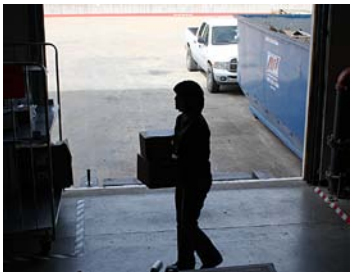


- **SHARPNESS** : Adjust sharpness level: 0 ~ 10 steps
- **MIRROR** : Select a flip mode: OFF / H / V / H&V
  - H : You can flip the picture horizontally on the screen
  - V : You can flip the picture vertically on the screen
  - H&V : You can flip the picture horizontally & vertically on the screen

H Mirror Off

H Mirror ON

- **Freeze** : Select real or still mode: OFF / ON
- **E.ZOOM** : Select maximum digital zoom magnification: x1 ~ x12, x14, x15, x18, x21, x25, x32
- **HLC** : Select High Light Compensation. When extremely bright light is projected to the camera masking is used on the portion to prevent partial saturation on the monitor: OFF / ON
  - ON LEVEL : 0 ~ 20 steps. COLOR : Black, White, Yellow, Cyan, Green, Magenta, Red, Blue
- **ACE** : Select Digital WDR (Wide Dynamic Range): OFF / ON. NOTE: When ACE is On, WDR/BLC and DEFOG function can not turn on.

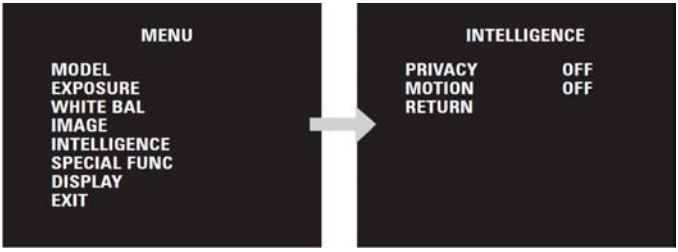


WDR Off

WDR ON

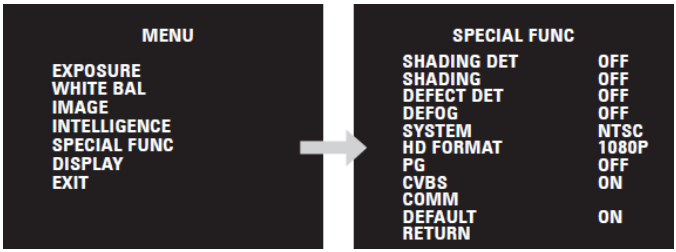
- **DNR** : Select Digital Noise Reduction: AUTO / OFF / LOW / MIDDLE / HIGH
- **D.COMPRESS** : Use this function only with IP camera. Set to OFF.

3.6 INTELLIGENCE



- **PRIVACY** : Hide an area you want to hide on the screen: OFF / ON
  - MASK# : Select mask area number (0 ~ 31)
  - MODE : Set-up masking areas. (OFF / ON)
  - X-POS : Adjust the mask X-Axis position
  - Y-POS : Adjust the mask Y-Axis position
  - X-SIZ : Adjust the mask X-Axis size
  - Y-SIZ : Adjust the mask Y-Axis size
  - COLOR : Cyan, Green, Magenta, Red, Blue, Black, White, Yellow
  - TRANS : Select mask transparency level (0 ~ 4)
- **MOTION DET** : When there is movement of the subject on the screen, there will be motion detection: OFF / ON to disable / enable MD function.
  - SENSITIVITY : Adjust sensitivity of MD (0 ~ 20 steps) More sensitive to setting to lower step with sensitivity
  - AREA : Designate motion detection area (WHOLE / EACH)
    - AREA# : Setting 3 areas (0~2) of motion detection.
    - MODE : Limit and define areas of motion detection.
    - X-POS : Adjust the mask X-Axis position (0 - 60 steps)
    - Y-POS : Adjust the mask Y-Axis position (0 - 40 steps)
    - X-SIZ : Adjust the mask X-Axis size
    - Y-SIZ : Adjust the mask Y-Axis size
    - TRANS : Adjust color tone of out of selected areas (options 0 - 6)
    - INTERVAL :Select the alarm interval time (0 ~ 255 s)
    - DWELL : Select the duration time about changing MD mode (0 ~ 255 s)
    - RETURN

3.7 SPECIAL FUNCTION



- **SHADING DET** : Sets the shading calibration that the lens will perform. Only occurs when the entire screen is viewed in white light.(OFF / ON)
- **SHADING** : Select Lens shading compensation. (OFF / ON)
- **DEFECT DET** : Compensates for bad pixels that my occur. Occurs when the whole screen is in full black or if there is bad pixelation and it changes the THRS values until the screen is fixed. (OFF / ON)
- **DEFOG** : Carry out defog function: OFF / ON
  - LEVEL : adjust amount of fog on display screen: 0 ~ 10. NOTE: When DEFOG is On, ACE and WDR/BLC function can not turn on.
- **SYSTEM** : Select NTSC or PAL. (NTSC / PAL)
- **HD FORMAT** : Select Digital output 1080P or 720P. (1080P / 720P)
- **PG*** : Select Color pattern generator (OFF / ON)
- **CVBS** : Select Composite signal (OFF / ON)
- **COMM** : Set up the camera ID, baud rate, protocol
  - ID : Select the camera ID: 1 ~ 255
  - BAUD RATE : Select serial communication speed: 2400 / 4800 / 9600 / 19200 / 38400 / 57600 / 115200 bps
  - PROTOCOL : Select operating protocol: PELCO-D / PELCO-P / UPDATE
- **DEFAULT** : All the settings will be restored to the factory default.

***** PG (Pattern Generator), PRIVACY MASK, MOTION AREA cannot work simultaneously, PG has priority, second is PRIVACY MASK and lastly, MOTION AREA. For example, if PG ON is selected while PRIVACY MASK is active, PRIVACY MASK stops and PG is active.

3.8 DISPLAY

- **DISP SEL** : Select display item.
  - ID : OFF / ON
  - TITLE : OFF / ON
  - EZOOM : OFF / ON
- **SET TITLE** : Select camera title menu (Text edit)

A B C D E F G H I J K L M N O P Q R S T
U V W X Y Z a b c d e f g h i j k l m n
o p q r s t u v w x y z , . ( ) { } [ ]
0 1 2 3 4 5 6 7 8 9 * + - / = ~ ! ? " '
S P B S C L R P O S
RETURN

Set Title character set (on-screen)

SECTION 4
Specifications

Table 1. Component Specifications

Component	Value
Image Sensor	1/3" Panasonic CMOS
Total Pixels	2010 (*h*) x 1108 (*v*) = 2,227,080 (pixels)
Active Pixels	1944 (*h*) x 1092 (*v*) = 2,122,848 (pixels)
Scanning system	Progressive
Resolution	Digital : 1920 x 1080 (1080p / 30 fps), 1280 x 720 (720p / 60fps) Analog : 700 TVL
Min. Illumination	Color : 1.0 lux , B/W : 0.5 lux Color DSS : 0.002 lux , BW DSS : 0.001 lux
Video output	HD-SDI Analog : NTSC, PAL (without WDR)
S/N ratio	> 50 dB (AGC off)
Function	
MODEL	D&N / COLOR / IR SMART / IR CDS
EXPOSURE	
BRIGHTNESS	0 ~ 20 steps
LENS	DC / Manual
SHUT SPEED	Auto / Manual (1/30 (1/25) ~ 1/60000)
DSS	Off / x2 / x3 / x4
AGC	Off / On
WDR/BLC	Off / WDR / BLC
DAY&NIGHT	Auto / Day / Night / Ext
SMART IR	Off / On
White Bal	Auto / Preset / Manual / Indoor / Outdoor
IMAGE	
SHARPNESS	0 ~ 10 steps
MIRROR	Off / H / V / H&V
FREEZE	Off / On
E.ZOOM	x1 ~ x32
HLC	Off / On
ACE	Off / On

Component	Value
DNR	Off / Low / Middle / High / Auto
D.COMPRESS	OFF / ON
INTELLIGENCE	
PRIVACY	Off / On (32 points)
MOTION	Off / On (4 points)
SPECIAL FUNC	
SHADING DET	Off / On
SHADING	Off / On
DEFECT DET	Off / On
DEFOG	Off / On
SYSTEM	NTSC / PAL
HD FORMAT	1080p / 720p
PG	Off / On
CVBS	Off / On
COMM	ID (1 ~ 255) Baud rate: 2400 / 4800 / 9600 / 19200 / 38400 / 57600 / 115200, protocol: PELCO-P / PELCO-D / UPDATE
DEFAULT	ON / DONE
Language	English
OSD Text	0 ~ 9 , A ~ Z , a ~ z
Electrical	
Voltage	12 Vdc ± 10 % , 24 Vac ± 10 %
Current	350 mA (12 Vdc ± 10 %) , 250 mA (24 Vac ± 10 %)
General	
Video Output (HD-SDI)	BNC connector
Operating Temperature	+14 °F ~ +122 °F (-10 °C ~ +50 °C), Humidity : 0 % RH ~ 80 % RH
Storage Temperature	-4 °F ~ +140 °F (-20 °C ~ +60 °C), Humidity : 0 % RH ~ 90 % RH

APPENDIX A
Troubleshooting

If you experience problems you cannot resolve, please contact your distributor.

Problem	Solution
Nothing appears on the screen.	- Check the power connections. - Check the video cable connections.
The video image is not clear.	- Clean the lens with a soft, clean cloth. - Adjust the camera so it is not facing a bright light source. - Adjust the monitor screen for room lighting conditions. Move the camera if necessary.
The screen is dark.	- Adjust the contrast feature of the monitor. - If you have an intermediate device, set the 75 Ω /Hi-Z property, and check the terminals.
The MOTION DETECTION function is not working	- Is "MOTION DETECTION" mode turned on? - Is the MD Sensitivity set too low? Increase the sensitivity. - Check the setting of the MD AREA.
The WDR function is not working	- Is the WDR level too low? - Is the AE Mode set to MANUAL? WDR is disabled in MANUAL exposure mode.
Colors are not quite right.	- Is the camera facing directly into sunlight or fluorescent light? Adjust the camera or lighting as needed.
The Day&Night function doesn't work.	- Is the AGC (EXPOSURE menu) set to OFF? The Auto Day&Night Function doesn't work if the AGC is OFF. - Check the D <—> N level.

APPENDIX B
Camera Dimensions